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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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THIS IS UNEVALUATED INFORMATION

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1. Name of Factory: Krasnaya Presnya Engineering Works, Moscow. (Moskovski Mashinostroitelny Zavod Krasnaya Presnya).

2. Location: No. 14 Rastorguyevski Street (pereulok), Krasnopresnenski (Krasnaya Presnya) District, Moscow. Rastorguyevski Street is about 1.5 km. from Belorusski railway station.

3. History: Before the Revolution the site of the Krasnaya Presnya Works was occupied by the engineering works of Grachev & Co., which executed mechanical work of various kinds and specialized in the construction of crosses for graves. Employees of these works took part in the 1905 and 1917 uprisings. After the Revolution the works were designated Krasnaya Presnya State Engineering and Cast-iron Works. The works were then expanded, and began to produce moulding machines, loam-preparing machines, loam-sifting machines (zemleseyalka) of Royer type, ventilators of various types, lifting jacks, and glass machines of Fourcauld type. Large orders were executed by the works for important new industrial undertakings, including the Kuznetskstroi (Kuznetsk Building Trust). At that time the works belonged to the P.C. for Heavy Industry of USSR which controlled them through the Chief Directorate for the Foundry and Fittings Industry.

4. During the war the works transferred 60% of its efforts to production for defense purposes. However, in 1943, by a decision of the government the works were almost completely switched over to the production of foundry machinery and equipment in view of the importance of the production of the foundry industry. After the war the works specialized exclusively in the production of foundry equipment. The production of Fourcauld machines for glassworks, various types of ventilators, and lifting jacks was transferred to other factories of the Ministry for Machine and Instrument Manufacture. Moreover, with every year of the new Five Year Plan, the works are specializing more and more in the production of complex machinery for foundry equipment and transferring the production of simpler machines to other factories. At present the Krasnaya Presnya Works is the only enterprise of the Soviet Union which is specialized in the production of foundry machines.

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They cannot satisfy all the requirements of the numerous foundries in the USSR; hence, many other engineering works produce foundry equipment. However, the Krasnaya Presnya Works are the center for the production of foundry equipment. The Design Bureau of the works is at present being expanded, and is working in close contact with the Central Design Bureau for Equipment (Tsentralnoye Konstruktorskoye Byuro Oborudovaniya - TsKBO) belonging to the Ministry for Machine and Instrument Manufacture.

4. Control: Ministry for Machine and Instrument Manufacture of USSR.

5. Type of Product: At present (1949) the works specialize in the production of moulding machines of various types, machines for casting under pressure, and several types of loam-preparing machines. Whereas in the first years after the war the works produced various moulding machines which were exact copies of foreign machines (mainly American), now they produce machines designed either by their own Design Bureau or by the Central Design Bureau for Equipment of the Ministry for Machine and Instrument Manufacture. The works produce machines in small series only.

6. Various machines produced by the works are as follows:

a. Moulding machines for mould boxes and cores, built by the works between 1945 and late November 1949.

(1) Pneumatic pressing moulding machine type 222 for moulding small low boxes (opoka). Height less than 150 mm . The pattern is extracted by a special dowel (shift) device.

Overall dimensions of machine: length - 1200 mm, width - 400 mm, height - 1650 mm, weight - 850 kg.

Maximum dimensions of boxes: length - 500 mm, width - 400 mm, height - 150 mm. Dimensions of table - 570 x 460 mm.

Consumption of air for one moulding: approximately 0.3 cu . m.

Productive capacity of machine with complete mechanization of all processes: 60 boxes per hr.

The machine is served by one man. The machine was designed at the beginning of 1946 and is still being produced. It works by the overhead compression (verkhne pressovaniye) method. This machine replaces the imported Adams, Arcade 81-10 machines.

(2) Pneumatic moulding machines of types 231 and 232. Produced in 1945 and 1946. Not produced at present and therefore not described.

(3) Pneumatic jolt-ram (vstryakhivayushchaya formovochnaya) machine of type 233. Serial production started at the beginning of 1948 and is still continuing.

Composed of two units (Aggregatnaya chast): the jolting device and the rotary and drawing (vytazhnoi) device. Mounted on a concrete base.

The machine is for moulding lower boxes and cores.

Dimensions of moulding boxes: length - 1400 mm, width - 1000 mm, height - 400 mm.

Maximum lifting (load) capacity (gruzopodemnost) of machine: 1350 kg.

Effective air pressure: 6 atmospheres.
Consumption of air for one moulding operation: about 2 cu. m.
Quantity of oil for filling the machine: 270 liters.
Productive capacity of machine with complete mechanization: 15 boxes per hr.

Overall dimensions of machine (without piping): length - 3680 mm, width - 2090 mm, height (with inverted table) - 3100 mm.

Weight of machine 5600 kg.

(4) Moulding machine type 234. Productive capacity: 80 boxes per shift. Made in small numbers (1947 - 1949).

(5) Jolt-ram moulding machine type 242.
Serial production started at the beginning of 1948.
Dimensions of boxes moulded: length - 660 - 800 mm, width - 390-710 mm, height - 300 mm.
Lifting capacity of jolting: 700 kg. at 6 atmospheres.
Movement (khod) of extraction: 250 mm.
Diameter of jolting piston: 250 mm.
Effective air pressure: about 6 atm.
Consumption of air for one moulding operation: about 0.6 atm.
Overall dimensions of machine: length - 1600 mm, width - 900 mm, height - 1050 mm.
Weight of machine: 1850 kg.

The mounting is fixed on a concrete base.

Productive capacity of machine with complete mechanized feed of loam to box and pneumatic hoists for removal of boxes when ready: maximum of 30 boxes per hr.

(6) Pneumatic moulding type 243. If the operation is mechanized, this machine can produce 120 boxes per shift (8 hrs). In serial production since 1948 in small quantity.

(7) Pneumatic moulding machine type 253.
Productive capacity, if work is mechanized, 30 boxes per hr.

(8) Moulding machine 254, for medium-sized cast-iron and steel parts. If work is mechanized, production capacity is 30 boxes per hr.

(9) Pneumatic moulding machine with dowel device for removal of boxes, type 261. A machine for moulding small boxes.

Dimensions: length - 500 mm, width - 400 mm, height - 200 mm.
Dimensions of jolting table: 570 x 460 mm.
Compressed air pressure: about 6 atm.

Maximum load capacity of jolting gear: 150 kg.

Consumption of air for one moulding operation: about 0.4 cu. m.

Productive capacity with complete mechanization: maximum of 60 boxes per hr.

Served by one man.

Overall dimensions: length - 1060 mm, width - 1000 mm, height - 1650 mm.

Weight of machine: 1000 kg.

This machine replaces important moulding machines of the following types: Osborn-275, Nicholls-10, 11, 11-N, 12, 14, Adams 10-32, International - RK-10, RK-13.

Three different models are produced on the basis of this machine: a pressing machine, a jolting machine for moulding without boxes, and a jolting machine with under-pressing (podpressovka).

(10) Pneumatic jolt-ram broach (protyazhny) moulding machine type 265 with underpressing.

In serial production since the end of 1947.

Four moulding upper boxes.

Dimensions of boxes moulded: length - 800 mm, width - 700 mm, height - 300 mm.

Lifting capacity of jolting gear at 6 atm.: 600 kg.

Effective pressure: 5-6 atm.

Consumption of air for one moulding operation: about 0.6 cu. m.

Overall dimensions of machine: length - 1850 mm, width - 1780 mm, height - 2425 mm.

Weight of machine: 4500 kg.

Fixed mounting on concrete base.

Productive capacity with mechanized loam-feed to boxes, cranes, and roller conveyors: maximum of 30 boxes per hr.

(11) Pneumatic moulding machine type 271 for boxless moulding of small boxes on two-sided mould board (modelnaya plita).

This machine has been unified with machine type 222 and in its manufacture 95% of the parts of the basic moulding machine type 261 for small boxes are employed.

Compression (uplotneniye) in this machine is obtained by jolting with subsequent additional pressing (dopressovka).

Weight of machine: 800 kg.

Mounted on a concrete base.

Overall dimensions: length - 1100 mm, width - 1000 mm, height - 1650 mm.

Productive capacity with complete mechanization: about 50 moulds per hr.

Operated by one worker.

Maximum dimensions of boxes: 400 x 300 mm.

Dimensions of jolting table: 470 x 420 mm.

Maximum lifting power of jolting gear: 150 kg.

Number of jolts per min: 60-90.

Consumption of air for one moulding operation: about 0.3 - 0.4 cu. m.

This machine replaces imported machines: Osborne 274, 275, Adams 10-32, Arcade (Arkeid)-81, Arcade -75, Arcade -8, International 16-21.

(12) Pneumatic moulding machine type PF-3. Produced in 1946 but production has ceased.

(13) Core machine type 284. Now in serial production.

Dimensions of core box: length - 600 mm, width - 450 mm, height - 370 mm.

(14) Core machine type 284. Now in serial production.

Dimensions of core box: length - 600 mm, width - 450 mm, height - 370 mm.

Productive capacity of machine with complete mechanization: maximum of 30 cores per hr.

Consumption of air per moulding operation: about 0.3 cu. m.

Overall dimensions: length - 1200 mm, width - 1125 mm, height - 1400 mm.

Weight of machine 600 kg.

(15) Sand slinger type 292.

A very large machine for filling large boxes.

Length - 1050 mm, height - 4200 mm.

Productive capacity with complete mechanization: more than 10 cu. m. of moulding loam per hour.

After successful tests, construction of 4 of these machines was begun in October 1949.

b. Moulding machines for mould boxes and cores, built by the works since the war which are exact copies of foreign machines.

(1) Hand core machine with reversing plate, type S-3.

Maximum dimensions of core box: length - 400 mm, width - 300 mm, height - 200 mm.

Maximum weight of core box with core mixture and drying plate: 15-20 kg.

Weight of machine: 300 kg.

(2) Hand core machine with reversing plate, type S 4.

Dimensions of core box: length - 500 mm, width - 360 mm, height - 200 mm.

Maximum weight of core box with core mixture and drying plate: 30 kg.

S-3 and S-4 machines do not require a special foundation. They are copies of the American Osborne 40-42 machines.

(3) Sandblast core machine type S-7. A copy of the Daimler (Demmler) sandblast machine.

Maximum dimensions of core box: length - 390 mm, width - 325 mm, height - 490 mm.

Weight of machine proper: 1 ton.

Capacity of container for core mixture: 15 liters.

Machine is operated by 2 workers.

(4) Core machine type VF-12, an exact copy of the American "Herman" (or German) Pneumatic-3000" machine (3000 designates weight in pounds).

Dimensions of core box: length - 1250 mm, width - 1000 mm height - 450 mm.

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Operated by 3 workers.

(5) Core machine VF-13, an exact copy of the "Herman-1500".

Dimensions of core box: length - 1000 mm, width - 660 mm, height - 450 mm. Operated by 3 workers.

(6) Core machine type VF-20, an exact copy of the "Herman-750". Dimensions of core box: length - 600 mm, width - 500 mm, height - 300 mm. Operated by 2 workers.

(7) Core machine type TsKB-331, a copy of the "Champion" machine.

Dimensions of core box: length - 500 mm, width - 500 mm, height - 150 mm. Operated by 2 workers.

(8) Many other machines which are copies of foreign machines and are designated: VF-3, VF-4, VF-9, VF-9a, VF-10, VF-10a, VF-17.

(9) An instrument which is a time valve for automatic adjustment of a moulding machine for a given density of filling of moulds. Almost an exact copy of the electric automatic adjuster of the American firm "Herman".

c. Machines for casting under pressure. Before the war there was no serial production in USSR of machines for casting under pressure. Only the Krasnaya Presnya Works produced a few examples of machines of type LD-7 which were copies of the Polak 500 (Prague).

(1) LD-7 machine.
Overall dimensions: length - 2900 mm, width - 1500 mm, height - 2790 mm.

Weight of machine without pump and accumulator: 4500 kg.

Maximum weight of castings: aluminium alloy - 1.8 kg, copper - 4 kg, zinc - about 4 kg.

Before the war imported machines were of the "Polak" (Prague) type and German machines of the Ekkert firm.

During the war American machines of Reid Francis (type L.5 G) predominated in USSR.

(2) Machine type 511 for casting under pressure.

In 1947 the chief designer of the works, Kosenkov, and designer Morozov designed a machine for casting under pressure known as the 511. The first machine was completed and tested at the beginning of 1948 and from that time serial production began and still continues.

A complex machine aggregate composed of: a hydraulic piston high pressure pump with electric motor of 12 HP with belt transmission; a cylinder (accumulator) calculated for a maximum pressure of 200 atm, containing about 150 liters of liquid; a press device.

Casting is done under a pressure of 120 atm.

Weight of bronze casting: about 2 kg; of aluminium and light alloys: about 1.3 kg.

Precision of castings to 0.05 mm.

Productive capacity of machine: about 1000 castings per shift of 8 hrs.

Operated by one worker. Controlled by pedal valves.

d. Machines for the mechanization of loam preparation, produced by the works since the War.

(1) Portable flat sieves type 171 with drive from electric motor and other types.

(2) Ball mill type Z M-13 for crushing coal, coke, graphite and other material for foundries.

Production capacity of ball mill for coal: 75 kg. per hr. (maximum). The drum is filled to one third of its capacity (30-40 liters). Pieces should not exceed 60-65 mm. and must be dry.

Overall dimensions of the machine: length - 1400 mm., width - 1190 mm., height - 1550 mm.

Weight of machine: 880 kg. Mounting of machine is fixed.

Duration of crushing process: 20-30 min.

Sieve with 50-60 meshes per sq. cm.

Power expended: 2.5 - 3.5 HP.

Number of r.v.p. of machine: 40-50.

Weight of metal balls: about 50 kg.

Diameter of balls may be 1.5, 1.75, 2, 2.5, 3 and 3.5 inches. Number of balls depends on size provided total weight does not exceed about 50 kg.

(3) Several types of crusher-roll mills (rasmalyvayushchi begun) with upper drive.

Details of a large-size crusher-roll mill:

Diameter of pan: 2200 mm.
Diameter of rollers: 1250 mm.; width of rollers: 325 mm.

Output of machine per hr.: about 1.5 tons.

Consumption of power: about 10 KW.

Weight of machine: 6300 kg.

(4) Mixing crusher-rolls for preparation of moulding and core mixtures.

Type 111, also designated ZM-2.

Diameter of pan: 1820 mm.; height - 600 mm.

Load of crusher-rolls 0.2-0.3 cu. m.

Diameter of rollers: 735 mm., width 150 mm.

Weight of roller: 320 kg.

Power: about 10 KW.

Weight of machine: 3100 kg.; weight of reducing gear; 300 kg.

(5) Mixing crusher-roll mill type 112; also designated ZM-3.

Diameter of pan: 2405 mm., height - 690 mm.

Load: 0.4-0.6 cu. m.

Power: 20 KW.

Diameter of roller: 900 mm, width - 275 mm, weight - 800 kg.

(6) Aerators, machines for aeration. Several types were built with output of 10 to 100 tons per hr.

Aerators of smallest size.

Overall dimensions: length - 1100 mm, width - 900 mm, height - 200 mm.

Output: 10 tons per hr.

Power: 3.5 KW.

Weight: 600 kg.

(7) Moisteners (uvlazhitel) of 2 types, for moistening mixtures. The Krasnaya Presnya Works do not produce them, but provide the designs, as any factory can easily produce them.

(8) Special appliances for taking samples of moulding mixture from a crusher-roll while the machine is in operation.

9. Machines for knocking out (vybivka) and cleaning of castings (produced by the works since the War).

(1) Pneumatic vibration grids of several types for knocking out moulds and loam from boxes. The most widely employed grid has a lifting capacity of 1.5 tons.

(2) Vibration machine type O-14 for knocking out cores; of several sizes and capacities.

(3) Special work benches for cleaning and trimming work with dust suction appliance.

(4) Cleaning drum on rollers (production has now ceased).

(5) Cleaning drum on trunnions, type TsKB-27. Diameter of drum: 775 mm. Capacity of drum: 0.72 cu. m.

Power of electric motor: 6.4 KW.

(6) One-chambered sandblast apparatus type TsKB-19 for sandblast cleaning of castings. Sand is sprayed at high speed on the surface to be cleaned and removes sand crust, skin (okalina) etc.

(7) Sandblast drum type O-3.

Quantity of sand load: 50 liters. Diameter of nozzles: 9 mm.

Compressed air pressure: 2-3 atm. Output: 120 cu. m. per hr.

(8) Band metal shot blast drum type O-34; also designated TsKB-34.

Dimensions of working chamber: diameter - 1200 mm, length - 1000 mm.

Average standard of loading: 0.45 cu. m.

Quantity of shot loaded at a time: 225 kg.

7. Actual Output. Since the war output has been increasing yearly. In 1946, the first year of the postwar Five Year Plan, the works produced approximately

260 moulding machines
140 knocking out machines
800 loam preparation machines.

Those machines were built, but some were not completely equipped owing to delay in the arrival of electric motors and other parts from electrical works. At present supplies from accessories factories are received more regularly.

Approximate output figures for 1949 will be:

Moulding machines of all types	about 700
Knocking out machines	" 250
Loam-preparing machines	" 1500
Machines for casting under pressure	" 80

8. Personnel. The number of hands employed is about 2900. Some of the high level personnel are as follows:

a. Director: V. M. Muradov,* who replaced N. Voledin over 2 years ago.

b. Chief Engineer: Filippov, who replaced Konyukhov about a year ago.

c. Chief Designer and head of Design Bureau: P. S. Kosenkov

d. Designers: Engineers N. N. Morozov, N. A. Drozdov, V. P. Drobtsov

e. Production Chief: Engineer Chetverkin

f. Engineer-Technologists: Belan, Lerner, Sverdlik, Mikhailov

g. Chief of Power Shop: Engineer Deineka

h. Chief of Forge Shop: Engineer Drobosko

i. Chief of Metal Construction Shop: Engineer Zhiltsov

j. Chief of Foundry: Engineer Godovalkin

k. Chief of 1st Engineering Shop: Engineer Gorbunov

l. Chief of 2nd Engineering Shop: Engineer Zimin

m. Chief of Assembling Shop: Engineer Petrushev

n. Chief of Experimental Shop: Engineer Morozov.

9. Shifts

Work is conducted in 3 and 2 shifts.

[redacted] Comment: Gusev previously reported to be director on 14 June 1949. 50X1-HUM 50X1-HUM

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